

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

To:

Tope-McKay & Associates
Attn. Tope-McKay, Cary R.
23852 Pacific Coast Highway #311
Malibu, CA 90265
UNITED STATES OF AMERICA

Date of mailing
(day/month/year)

26/03/2002

Applicant's or agent's file reference

HRL033-B-PCT

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No.

PCT/US 01/27194

International filing date
(day/month/year)

30/08/2001

Applicant

HRL LABORATORIES, LLC

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Alex Schmidt

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference HRL033-B-PCT	FOR FURTHER ACTION <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. PCT/US 01/ 27194	International filing date (<i>day/month/year</i>) 30/08/2001	(Earliest) Priority Date (<i>day/month/year</i>) 05/09/2000
Applicant HRL LABORATORIES, LLC		

This International Search Report has been prepared by this international Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

- ☐ as suggested by the applicant.
- ☐ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.

☐ None of the figures.

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C09K19/18 C09K19/30 C09K19/34 C07C25/24 C07C255/50
C07C43/225

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07C C09K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

CHEM ABS Data, EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 41 11 990 A (MERCK PATENT GMBH) 24 October 1991 (1991-10-24)	1-3
A	claims; example 2 ----	17
X	US 5 453 864 A (YAMADA SHUHEI ET AL) 26 September 1995 (1995-09-26) claim 1 ----	1,3
X	DATABASE WPI Section Ch, Week 199348 Derwent Publications Ltd., London, GB; Class E13, AN 1993-383033 XP002192887 & JP 05 286920 A (SEIMI CHEM KK), 2 November 1993 (1993-11-02) abstract ----- -/--	1,3



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

13 March 2002

Date of mailing of the international search report

26/03/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Puetz, C

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 648 723 A (SUMITOMO CHEMICAL CO) 19 April 1995 (1995-04-19)	1-3, 5, 6
A	example 10	17
X	BREMER, MATTHIAS ET AL: "Gas phase molecular modeling of liquid crystal: electro-optical anisotropies" ADV. MATER. (WEINHEIM, FED. REPUB. GER.) (1993), 5(11), 842-8 , 1993, XP000414825 table 1: compound no. 44	1, 4
X	DE 41 05 742 A (MERCK PATENT GMBH) 27 August 1992 (1992-08-27)	1, 4
A	the whole document	21
X	EP 0 442 266 A (SEIKO EPSON CORP) 21 August 1991 (1991-08-21)	1-4
A	claims 1, 3, 7; examples 2, 6	17, 21
X	DATABASE CA 'Online! CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; TAKEUCHI, KIYOBUMI ET AL: "Nematic liquid crystal compositions and liquid-- crystal display devices containing them" retrieved from STN Database accession no. 127:115344 CA XP002192882 abstract & JP 09 151373 A (DAINIPPON INK AND CHEMICALS, INC., JAPAN) 10 June 1997 (1997-06-10)	1-3
X	DATABASE CA 'Online! CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; OOSAWA, MASASHI ET AL: "1-(4-Cyclohexylphenyl)-2-phenylethane derivative for liquid crystal display device" retrieved from STN Database accession no. 125:22403 CA XP002192883 abstract & JP 08 040945 A (DAINIPPON INK & CHEMICALS, JAPAN) 13 February 1996 (1996-02-13)	1-3

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/27194

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 4111990	A	24-10-1991	DE 4111990 A1	24-10-1991
			JP 4234828 A	24-08-1992
			US 5242618 A	07-09-1993
US 5453864	A	26-09-1995	JP 1958935 C	10-08-1995
			JP 4128258 A	28-04-1992
			JP 6086416 B	02-11-1994
			DE 69106160 D1	09-02-1995
			DE 69106160 T2	24-05-1995
			EP 0442266 A1	21-08-1991
			HK 101797 A	15-08-1997
			US 5314640 A	24-05-1994
JP 5286920	A	02-11-1993	JP 3229007 B2	12-11-2001
EP 0648723	A	19-04-1995	DE 69410386 D1	25-06-1998
			DE 69410386 T2	07-01-1999
			EP 0648723 A1	19-04-1995
			JP 8073381 A	19-03-1996
			US 5658489 A	19-08-1997
			JP 8099917 A	16-04-1996
			JP 8104654 A	23-04-1996
DE 4105742	A	27-08-1992	DE 4105742 A1	27-08-1992
EP 0442266	A	21-08-1991	DE 69106160 D1	09-02-1995
			DE 69106160 T2	24-05-1995
			EP 0442266 A1	21-08-1991
			HK 101797 A	15-08-1997
			JP 1958935 C	10-08-1995
			JP 4128258 A	28-04-1992
			JP 6086416 B	02-11-1994
			US 5453864 A	26-09-1995
			US 5314640 A	24-05-1994
JP 9151373	A	10-06-1997	NONE	
JP 8040945	A	13-02-1996	NONE	
JP 9080396	A	28-03-1997	NONE	
EP 581272	A	02-02-1994	DE 69302537 D1	13-06-1996
			DE 69302537 T2	24-10-1996
			EP 0581272 A1	02-02-1994
			JP 6316541 A	15-11-1994
			SG 54136 A1	16-11-1998
			US 5356558 A	18-10-1994
JP 10045642	A	17-02-1998	NONE	

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE CA 'Online! CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; NAKADA, HIDETOSHI ET AL: "Manufacture of liquid - crystal device having light-controlling layer from composition with controlled specific resistance" retrieved from STN Database accession no. 127:26381 CA XP002192884 abstract & JP 09 080396 A (DAINIPPON INK AND CHEMICALS, INC., JAPAN) 28 March 1997 (1997-03-28)</p>	1-3
X	<p>TANAKA, TOSHIHIKO ET AL: "Highly anisotropic molecular materials for LCD" MOLECULAR CRYSTALS AND LIQUID CRYSTALS SCIENCE AND TECHNOLOGY, SECTION A: MOLECULAR CRYSTALS AND LIQUID CRYSTALS (2000), 346, 209-216, 2000, XP008001341 table I</p>	8-11
X	<p>EP 0 581 272 A (SEIKO EPSON CORPORATION) 2 February 1994 (1994-02-02) LC compositions j, l</p>	8,10,11
X	<p>DATABASE CA 'Online! CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; OSAWA ET AL.: "liquid-crystalline characteristic diacetylene compound with high dielectric anisotropy" retrieved from STN Database accession no. 128:186837 CA XP002192885 abstract & JP 10 045642 A (DAINIPPON INK AND CHEMICALS INC) 17 February 1998 (1998-02-17)</p>	8-11

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:
CARY R. TOPE-MCKAY
TOPE-MCKAY & ASSOCIATES
23852 PACIFIC COAST HIGHWAY #311
MALIBU, CA 90265

PCT

WRITTEN OPINION

(PCT Rule 66)

Date of Mailing (day/month/year) 13 NOV 2002	
Applicant's or agent's file reference HRL033-B-PCT	REPLY DUE within 1 months/days from the above date of mailing
International application No. PCT/US01/27194	International filing date (day/month/year) 30 August 2001 (30.08.2001)
Priority date (day/month/year) 05 September 2000 (05.09.2000)	
International Patent Classification (IPC) or both national classification and IPC IPC(7): C09K 19/34, 30; C07C 25/13 and US Cl.: 252/299.61, 299.63; 428/1.1; 570/127, 129	
Applicant HRL LABORATORIES, LLC	

1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.
2. This opinion contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2 (a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☒ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☒ Certain observations on the international application
3. The applicant is hereby **invited to reply** to this opinion.

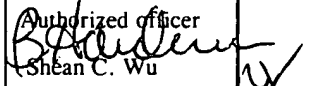
When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension. See rule 66.2(d).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 *bis*.
For an informal communication with the examiner, see Rule 66.6

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 30 December 2002 (30.12.2002).

Name and mailing address of the IPEA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703)305-3230

Authorized officer

Shean C. Wu
Telephone No. 703-308-0661

WRITTEN OPINION

International application No.

PCT/US01/27194

I. Basis of the opinion

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
 pages 1-15, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.
- ☒ the claims:
 pages 16-28, as originally filed
 pages NONE, as amended (together with any statement) under Article 19
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.
- ☒ the drawings:
 pages None, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.
- ☐ the sequence listing part of the description:
 pages NONE, as originally filed
 pages NONE, filed with the demand
 pages NONE, filed with the letter of _____.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages none
- ☒ the claims, Nos. none
- ☒ the drawings, sheets/~~fig~~ none

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed."

WRITTEN OPINION

International application No.
PCT/US01/27194

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims <u>9,12-14 and 17-24</u>	YES
	Claims <u>1-8,10,11,15 and 16</u>	NO
Inventive Step (IS)	Claims <u>9,12-14 and 17-24</u>	YES
	Claims <u>1-8,10,11,15 and 16</u>	NO
Industrial Applicability (IA)	Claims <u>1-24</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-3 and 15 lack novelty under PCT Article 33(2) as being anticipated by Krause et al. (US 5,242,618 or DE 4111900).

The reference discloses di- and trifluorotolans represented by the formula I, which are suitable as components of liquid crystal media. See Example 2 from col. 13 to col. 14. Also, see the claims 1-5 and 7-9. The reference anticipates the claimed invention.

Claims 8,10-11 and 16 lack novelty under PCT Article 33(2) as being anticipated by Yamada et al. (US 5,356,558 or EP 581272).

The reference discloses a fluorinated tolan represented by the formula (I) having a wide temperature range, a high-speed response and a large optical anisotropic value, which is useful for display devices. See the scheme for preparation for fluorinated tolan on col. 5 and col. 6, particularly, the bottom compound on col. 29.

Claims 1, 4, 8, 10-11 and 15-16 lack novelty under PCT Article 33(2) as being anticipated by JP 10-45642.

The reference discloses a fluorinated tolan compound represented by formula (I) having high refractive index and dielectric constant, which can improve the display devices. The formula (a) on page 2 is also useful as a component for liquid crystal composition. The reference anticipates the claimed invention.

Claims 1-4 and 15 lack novelty under PCT Article 33(2) as being anticipated by EP 442266 or US 5314640 or 5453864).

The reference discloses a liquid crystal composition having tolan derivatives. The composition comprises the components of formula (I). See the compounds of Example 2 and claims 3 and 7 of EP 442266 and US 5314640. Also, see claims 1 and 19 of US 5453864. The reference anticipates the claimed invention.

Claims 1-7 and 15 lack novelty under PCT Article 33(2) as being anticipated by JP 8-209130.

The reference discloses a nematic liquid crystal composition having a high birefringent index, a wide temperature range and high voltage retention. The composition comprises the components of formulae (I) and (II). See compositions 20 and 21, which comprise the claimed compounds. Also, see compounds 1-2, 4 and 6 in Table 1. The fluorinated tolan compound represented by formula (I) having high refractive index and dielectric constant which can improve the display devices. The formula (a) on page-2 is also useful as a component for liquid crystal composition. The reference anticipates the claimed invention.

Claims 1-7 and 15 lack novelty under PCT Article 33(2) as being anticipated by JP 9-255954.

The reference discloses fluorinated tolan represented by the formulae (I-1) and (I-2) having a high reliability and heat resistance to improve liquid crystal devices. The composition comprises the components of formulae (I) and (II). See compounds 10-11, and 14-16 in Table 2 on page 10. See Examples in the reference. The reference anticipates the claimed invention.

Claims 9, 12-14 and 17-24 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the liquid crystal compounds represented by formulae IV and V in the present claims.

----- NEW CITATIONS -----

JP 08-209130 (DAINIPPON INK & CHEM INC) 13 August 1996, see compounds 1-2, 4 and 6 in Table 1.

JP 09-255954 (DAINIPPON INK & CHEM INC) 30 September 1997, see compounds 10-11 and 14-16 in Table 2.

WRITTEN OPINION

International application No.

PCT/US01/27194

VI. Certain document cited

1. Certain published documents (Rule 70.10)

Application No <u>Patent No.</u>	Publication Date <u>(day/month/year)</u>	Filing Date <u>(day/month/year)</u>	Priority date (valid claim) <u>(day/month/year)</u>
US 6,149,837 A	21 November 2000 (21.11.2000)	25 February 1999 (25.02.1999)	25 February 1998 (25.02.1998)

2. Non-written disclosures (Rule 70.9)

<u>Kind of non-written disclosure</u>	Date of non-written disclosure <u>(day/month/year)</u>	Date of written disclosure referring to non-written disclosure <u>(day/month/year)</u>
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VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

Claims 1-2, 5, 7-10, 12 and 14-24 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims indefinite for the following reason(s): The notations x and n are not defined in claims 1-2, 5, 7, 15 and 17-20 and the notations x and m are not defined in claims 8-10, 12, 14, 16 and 21-24.

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

TIME LIMIT:

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.